

Notice of Allowability

Application No.

10/777,980

Examiner

Tim Bonura

Applicant(s)

SVARCAS ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the interview held on 09/15/2006.
2. ☒ The allowed claim(s) is/are 1-8,10-13,15 and 16.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>09/15/2006</u> . |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>12/08/2004</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other ____. |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
2. Authorization for this examiner's amendment was given in a telephone interview with Shannen Delany on 09/15/2006.
3. The application has been amended as follows:
4. Regarding claim 8, the claim shall read as follows:
 - a. 8. A system for updating a qtree stored in a coalesced persistent consistency point image (PCPI) of one or more qtrees, the system comprising: a management agent adapted to perform an update procedure from a source to the qtree, wherein the qtree transitions from a stable state to an unstable update state as the update procedure commences; and wherein the management agent is further adapted to transition the qtree from the unstable update state to a done state in response to the update procedure succeeding; wherein the management agent is further adapted to perform a two step jump ahead procedure to transition the qtree from the done state to the stable state wherein a new coalesced PCPI is exported; and wherein the two step jump ahead procedure transitions all qtrees in the coalesced PCPI to the stable state; whereby only a fixed number of PCPIs are consumed in updating the coalesced PCPI.
5. Regarding claim 9, please **CANCEL** claim 9.
6. Regarding claim 11:
 - b. 11. A method for tracking a set of organizational structures that are updated on a destination system replica by changes transmitted from a source system comprising the

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steps of: establishing a stable state in which each of the organizational structures in the set is consistent in the replica and free of update activity; when updating the organizational structures with the changes, moving the organizational structures into either a done state wherein the changes have been made to all of the organizational structures in the set or an unstable state wherein the changes have not been made successfully to at least one of the organizational structures; when at least one of the organizational structures is in the unstable state, attempting a rollback to an earlier version of the organizational structures; if the rollback is successful, taking a single persistent consistency point image (PCPI) of the set organizational structures and if the rollback is unsuccessful, attempting a rollback to an earlier version of the at least one of the organizational structures separately and, if the rollback of the at least one of the organizational structures is successful, then taking a PCPI all of the set of organizational structures including the rollback version of the at least one of the organizational structures; ~~and~~ from the PCPI, returning the set for organizational structures to the stable state; and wherein a fixed number of PCPIs are consumed.

7. Regarding claim 14, please **CANCEL** claim 14.
8. Regarding claim 15, line 1 delete "14" and insert "11" therefore.
9. The following is an examiner's statement of reasons for allowance: Regarding claims 1, 8 and 11: The prior art of record discloses a rollback system with snapshots. One such example of the prior art is U.S. Patent Number 6,771,843. However the prior art of record fails to teach singly or in combination with another prior art the claimed limitations of "and wherein the management agent is further adapted to transition the qtree from the unstable update state to a done state in response to the update procedure succeeding; wherein the management agent is further adapted to perform a two step jump ahead procedure to transition the qtree from

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the done state to the stable state wherein a new coalesced PCPI is exported; and wherein the two step jump ahead procedure transitions all qtrees in the coalesced PCPI to the stable state; whereby only a fixed number of PCPIs are consumed in updating the coalesced PCPI.” In the examiner’s opinion, the claimed subject matter has practical application in the field of fault reliability of computer storage.

10. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Tim Bonura**.

- The examiner can normally be reached on **Mon-Fri: 8:30-5:00**.
- The examiner can be reached at: **571-272-3654**.

12. If attempts to reach the examiner by telephone are unsuccessful, please contact the examiner’s supervisor, **Scott Baderman**.

- The supervisor can be reached on **571-272-3644**.

13. The fax phone numbers for the organization where this application or proceeding is assigned are:

- **703-872-9306 for all patent related correspondence by FAX**.

14. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov/>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

15. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the **receptionist** whose telephone number is: **571-272-2100**.

16. Responses should be mailed to:

- **Commissioner of Patents and Trademarks**

P.O. Box 1450

Alexandria, VA 22313-1450

Tim Bonura
Examiner
Art Unit 2114

September 18, 2006


SCOTT BADERMAN
SUPERVISORY PATENT EXAMINER